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Chemistry Lab Report

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Pd. 1&2

1. In our lab, we had to use a reference so we had a standing point on what we should look for to see if the substance contained the contaminant. We added the reactant to the reference, to see what the chemical reaction would look like; using that observation, we could tell whether or not the contaminant was in either the distilled water, tap water, or the unknown substance (ours was “12”). The reference solution was the ultimate reason that we knew The Contaminate was present in the substance. A good example would be the first set, the reference turned cloudy; so we know that if anything else turned cloudy than it was contaminated with the substance. The distilled water stayed the same, so it was not contaminated with this particular substance (distilled water was the “blank”, distilled water isn’t suppose to contain any sort of ion, because it is distilled, or clean. It itself is almost a test by showing that it wouldn’t react to just anything). The unknown however (12), turned cloudy, so the same chemical reaction occurred as it did with the reference, so our unknown contained the substance. (Sorry for the lack of naming, it was a result of the “unorganized” notes).
2. Some problems that could be countered with the use of qualitative tests are that it’s all based on reactions. Just because maybe one ion reacts with the reactant, doesn’t mean nothing else will. The test may show an ion is present, when it might actually be a totally different ion. More than one thing may react with a reactant. A good example, lithium, sodium, potassium, rubidium, caesium and francium all react with water.
3. These tests cannot confirm the absence of an ion because the whole idea is based on finding ions. If an ion is present, a chemical reaction occurs. Whereas if an ion isn’t present, there will be no chemical reaction. The whole idea is to find ions, because they react with the reactant. With the absence of a reaction, you may be able to tell if that specific ion isn’t there, but these results may be unstable for multiple reasons including equipment contamination and the lack of the ion in the solution (very little amount).
4. It’s is the simplest mistake that can be made, that can ruin the most important experiments. From the high school chemistry level up to important chemists, not cleaning wells or any equipment used for more than one thing is one of the most dangerous, yet most simple thing to do. If you don’t thoroughly wash equipment, past substances can remain on equipment (wells and stirring rods in this particular situation). If we are testing to see if there is iron in the local tap water, and it turns out it is present, and we then simply dump the tap water out of the well, and immediately put an unknown substance in, the iron in the tap water could possibly show up in the unknown; when it may not truly exist. Results can depend on how good equipment is washed in the lab; substances can show up in things they aren’t truly present in.